

R E M A R K S

Claims 1-20 are now in this application, and are presented for the Examiner's consideration.

In the first place, the term "watthour meter" was incorrectly translated from the Japanese specification of the priority document. This is further made clear, for example, from the present specification at page 13, line 1, where it discusses a value of A·Hr or Ampere Hours, which is a measurement by an ampere hour meter. For this reason, reference to watthour or watthour meter has been changed in the specification to ampere hour or ampere hour meter, respectively.

Further, the original Japanese language specification at paragraph [0019] of priority Japanese patent application no. 2000-104113 translates as follows: "In electrocasting, current is low at the time of start, and becomes larger gradually. It is desirable that current is stopped automatically at the stage of ampere hour meter's attaining a designated value of eduction, under the control of the computer. Emphasis has been added by underlining. It is therefore clear that current is stopped automatically at the stage of the ampere hour meter reading a designated appointed value.

In the view of the same, the specification and claims have been amended accordingly. A marked-up copy of the amendments to the specification and claims is attached hereto.

In addition, the ampere hour meter 24 of Fig. 5 is applied equally to the other embodiments, and therefore, Figs. 3 and 6

have been so amended, and the specification has also been amended to reflect the same. Therefore, no matter is presented herein.

The Examiner is requested to approve these drawing changes. A separate letter is enclosed which requests approval of these drawing changes, along with a copy of the drawing changes, marked in red.

Further, enclosed is a copy of Form PCT/IB/308 (mailed July 19, 2001) entitled NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES, indicating that the original PCT application was transmitted by the International Office to the U.S. Patent and Trademark Office.

Please charge any additional fees incurred by this Preliminary Amendment, or credit any overpayment, to Deposit Account No. 07-1524.

It is hoped that this Preliminary Amendment will facilitate an examination of the application on its merits.

Respectfully submitted,



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enclosures: Letter to Official Draftsman and marked-up
copies of Figs. 3 and 6
Form PCT/IB/308

MARKED-UP PORTIONS OF SPECIFICATION

Page 4, lines 17 - 28, cancel the paragraph, and in place thereof, insert the following new paragraph:

In order to attain the above-mentioned object, the present invention employs a method of carrying out electrocasting against wires under rotation thereof, while they are maintained static in the longitudinal directions to prevent biasing in the wall thickness of each electrocast product, as well as, bending and variation in the cross-sectional roundness thereof. The method of the present invention employs, in place of air agitation or the like, moving of the wires and the electrocasting solution, as necessary, to correct variation in the diameter among the products by making use of an ampere hour [a watthour] meter, [as necessary] for example, where leading current is stopped automatically at the stage that the ampere hour meter, reading the current for electrocasting, designates an appointed value.

Page 6, line 21 - Page 7, line 3, cancel the paragraph, and in place thereof, insert the following new paragraph:

The apparatus is composed essentially of an

electrocasting solution 3, positive electrodes 4, holding jigs 5, a negative electrode 8, an electrocasting tank 10, a chain gear driving motor 11, a belt 12, a holding jig driving motor 13, chain gears 14, [and] a [length of] chain 15, and ampere hour meter 24. The electrocasting solution 3 is charged into the electrocasting tank 10 and is warmed, filtered and agitated. A direct electric current is sent across the positive electrodes 4 and the negative electrode 8, and the rotation of the chain gear driving motor 11 is transmitted to the chain gears 14 through the belt 12 to enable the chain 15 to circulate the holding jigs, so that the holding jigs 5 can be autorotated on the axes thereof respectively by the holding jig driving motor 13 and the belt 12.

Page 9, line 30 - Page 10, line 9, cancel the paragraph, and in place thereof, insert the following new paragraph:

Then, each holding jig 5 was connected to the electrocasting apparatus with the coupling 21 to carry out electrocasting with a current density of about 6 A/dm^2 for 11 hours until ampere hour meter designates an appointed value, and at an orbital speed of 5 rpm and an autorotation speed of 100

rpm and manufacture 22 pieces of rod-shaped nickel electrocast products having an average diameter of about 1.5 mm and an average length of 400 mm using the wire and the nickel balls as a negative electrode and a positive electrode, respectively. Variation in the diameter among these 22 electrocast products was within the range of \pm 0.2 mm, and they were free from bending and had perfectly circular cross sections.

Page 10, line 29 - Page 11, line 14, cancel the paragraph, and in place thereof, insert the following new paragraph:

Meanwhile, the apparatus in the second embodiment is composed essentially of an electrocasting solution, 3, a positive electrode 4, holding jigs 5, negative electrodes 8, an electrocasting tank 10, a holding jig rotating motor 13, a belt 12, an ampere hour [a watthour] meter 24, pulleys 25 and a jig fixing structure 26. The electrocasting solution 3 was poured into the electrocasting tank 10, warmed, filtered and stirred. In this state, a direct current was charged, in a well-controlled manner, across the positive electrode 4 and the negative electrodes 8 connected to all of the holding jigs 5, as

necessary, together with the ampere hour [watthour] meter 24, respectively. Thus, the rotation of the holding jig rotating motor 13 was transmitted through the belt 12 and the pulleys 25 to the holding jigs 5 connected to the jig fixing structure 26 to effect electrocasting under autorotation of the holding jigs 5; whereas when a predetermined ampere hour [watthour] value is achieved, the electrocasting treatment is stopped.

Page 11, line 30 - Page 12, line 3, cancel the paragraph, and in place thereof, insert the following new paragraph:

In constitution of the second embodiment, it is desirable that an ampere hour [a watthour] meter 24 is used per holding jig 5 and that a small-size rectifier is used per holding jig 5 so as to facilitate current control. However, the present invention is not necessarily limited to this constitution, but one large-size rectifier may be used to send electric current to many holding jigs 5.

Page 12, line 22 - Page 13, line 8, cancel the paragraphs, and in place thereof, insert the following new paragraphs:

Then, each holding jig 5 was connected to the electrocasting apparatus with the coupling 21, and the autorotation speed of the jig 5 was set to 70 rpm. The wire and the nickel balls were used as the negative electrodes and as the positive electrode respectively, and a small-size ampere hour [watthour] meter was attached to each of 22 holding jigs 5.

When electrocasting treatment was carried out according to a technique in which one rectifier (max. 40A) with a current density of about 2 to 6 A/dm² is used, and electrocasting is terminated automatically at the state of ampere hour [watthour] value of 4.5 A·Hr (16200 coulomb), the treatment completed in about 9 ± 0.5 hours to give 22 pieces of rod-shaped nickel electrocast products having an average diameter of about 1.5 mm and an average length of 400 mm. There was substantially no variation in the diameter among these 22 electrocast products, and they were free from biased thickness and bending and had perfectly circular cross sections.

Page 13, line 26 - Page 14, line 13, cancel the paragraph, and in place thereof, insert the following new paragraph:

Meanwhile, the apparatus in the third embodiment is composed essentially of a jig fixing structure 26, a holding rod 16, a free rotating section 17, a pulley 27, a belt 12, an electrical insulating section 19, a negative electrode spring 28, a coupling 21, a holding jig 5, a spring 7, a wire 9, [and] a clip 22 and ampere hour meter 24. The holding rod 16 is welded to the circular jig fixing structure 26. The holding jig 5 is allowed to undergo free rotation by the free rotating section 17. The rotation of the belt 12 is transmitted to the pulley 27 to rotate it and further to autorotate the holding jig 5 through the electrical insulating section 19 and the coupling 21. The holding jig 5 holds a wire 9 under tension between the clip 22 and the spring 7. The electrical insulating section 19 is brought into press contact with the negative electrode spring 28 to charge a negative current only to the lower side of the section 19 to effect electrocasting with the electrocasting solution 23 being at the liquid level as shown in Fig. 4.

Page 15, lines 3 - 9, cancel the paragraph, and in place thereof, insert the following new paragraph:

The electrocasting treatment is carried out

in the apparatus as described above by supplying a direct current with a current density of 4 to 8 A/dm² for 10 to 20 hours, such that current is stopped automatically at the stage that ampere hour meter, reading current for electrocasting, designates an appointed value, to effect thickening to a rod having a diameter of about 0.8 to 2.8 mm. The thus obtained rod product is taken out from the electrocasting tank, washed well with water and dried.

MARKED-UP AMENDMENTS TO CLAIMS

Amend claims 1, 5, 12 and 13 as follows:

1. (Twice Amended) A method of manufacturing a ferrule, comprising the steps of:

carrying out electrocasting in an electrocasting tank

5 using at least one wire as a mother die set in at least one holding jig,

reading current for the electrocasting with an ampere hour meter,

rotating the at least one wire while maintaining the at 10 least one wire static in a longitudinal direction of the electrocasting tank during electrocasting, such that current for electrocasting is stopped at a stage when the ampere hour meter, reading current for the electrocasting, designates an appointed value, and

15 removing the at least one wire from a resulting electrocast product.

5. (Twice Amended) The method of manufacturing a ferrule according to Claim 1, wherein the electrocasting step is carried out under autorotation of the at least one wire together with the at least one holding jig in the electrocasting tank, and further comprising the step of automatically stopping electrocasting treatment at a stage when [a watthour] an ampere hour meter attached to one of the holding jigs detects a predetermined [watthour] ampere hour value so as to achieve diameter control of

products to be manufactured.

12. (Amended) The method of manufacturing a ferrule according to Claim 2, wherein the electrocasting step is carried out under autorotation of the at least one wire together with the at least one holding jig in the electrcasting tank, and further 5 comprising the step of automatically stopping electrocasting treatment at a stage when [a watthour] an ampere hour meter attached to one of the holding jigs detectes a predetermined [watthour] ampere hour value so as to achieve diameter control of products to be manufactured.

13. (Amended) The method of manufacturing a ferrule according to Claim 4, wherein the electrocasting step is carried out under autorotation of the at least one wire together with the at least one holding jig in the electrcasting tank, and further 5 comprising the step of automatically stopping electrocasting treatment at a stage when [a watthour] an ampere hour meter attached to one of the holding jigs detectes a predetermined [watthour] ampere hour value so as to achieve diameter control of products to be manufactured.